
BRIGHTEX
ACTIVE LIGHTNING PROTECTION SYSTEM
A PROACTIVE SOLUTION
TO PREVENTING LIGHTNING STRIKES

Lightning

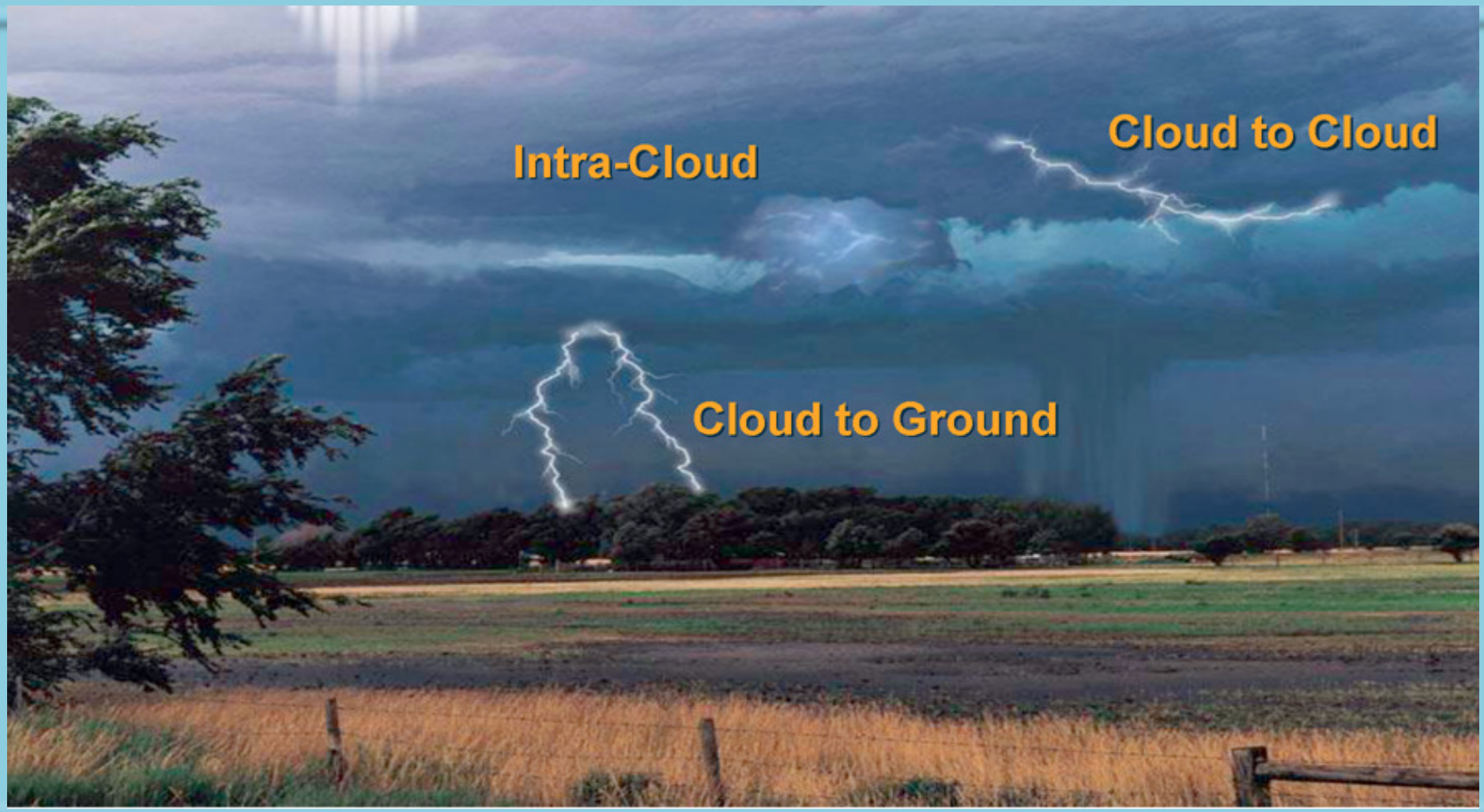
What is lightning?

- ✓ An atmospheric discharge of electrical energy to another point

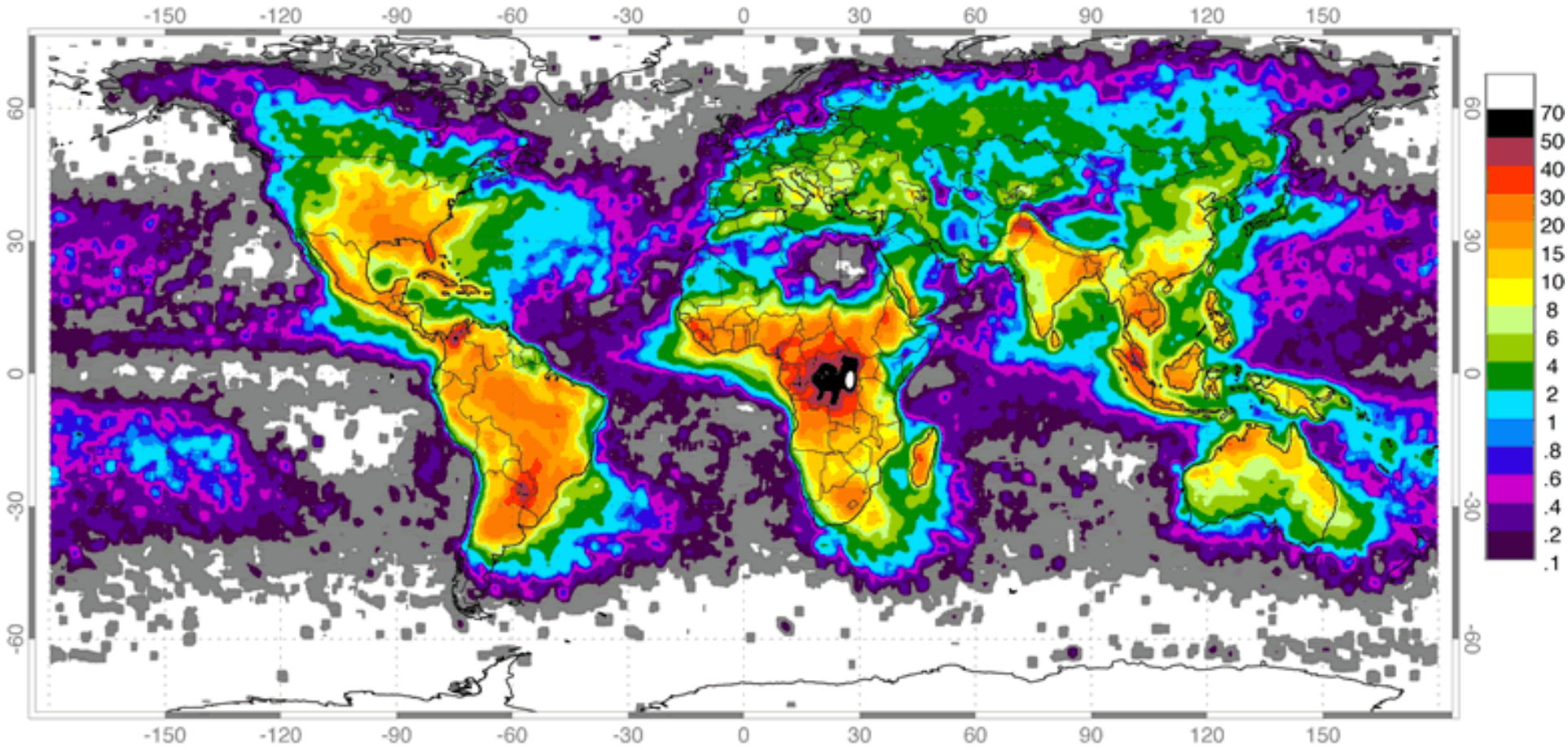
What causes lightning?

- ✓ Evaporation
- ✓ Unstable breezes
- ✓ Moisture from clouds
- ✓ Collision of ice and water particles
- ✓ Charge separation (polarization) in clouds

Types of Lightning



World Lightning Map (S/Km2/y)



Low Resolution Full Climatology Annual Flash Rate

Global distribution of lightning April 1995-February 2003 from the combined observations of the NASA OTD (4/95-3/00) and LIS (1/98-2/03) instruments.

Consequences of Lightning

Risks

- ✓ People
- ✓ Property
- ✓ Profits

Damage

- ✓ Billions of dollars in economic losses each year in the United States

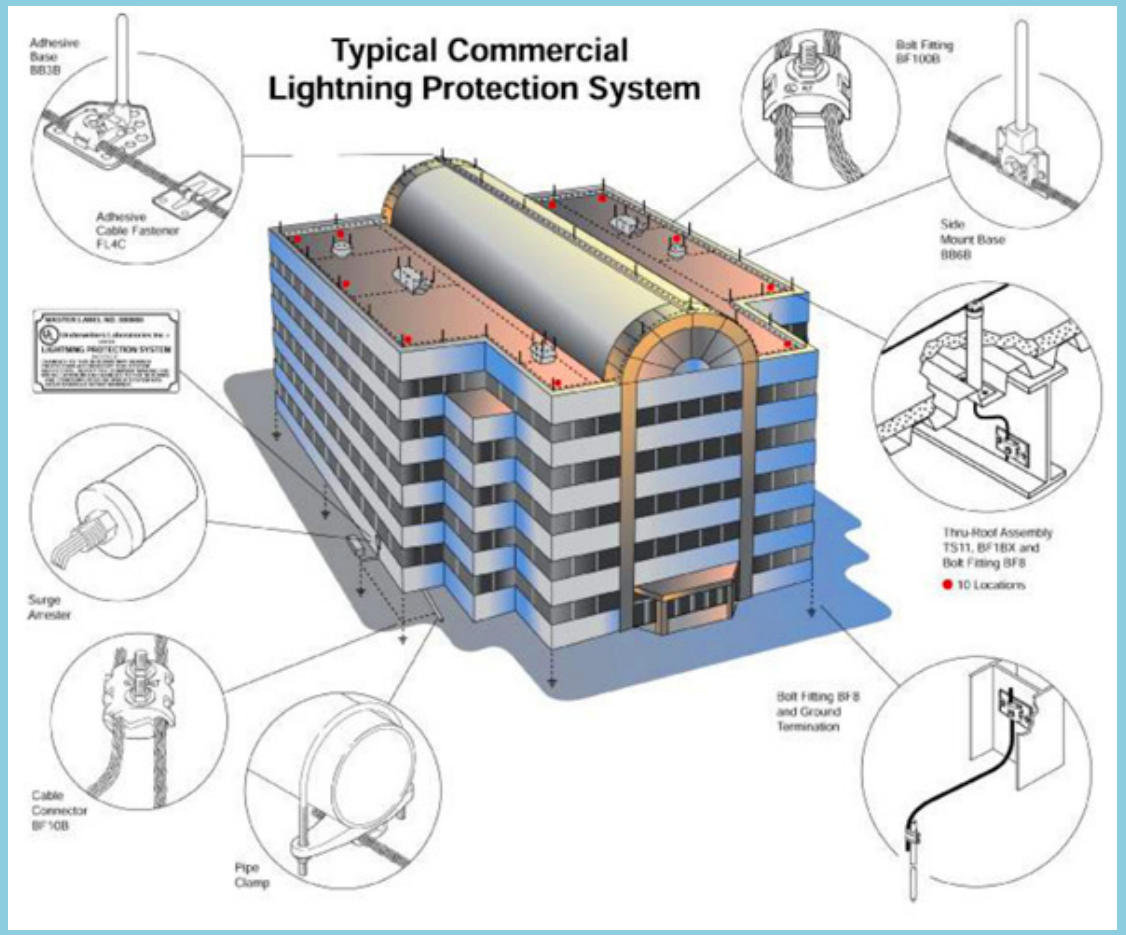
Current Protection Methods

Grounding

- ✓ Air Terminals
- ✓ Bases
- ✓ Grounding Rods
- ✓ Conductors

Suppression

- ✓ Arrestors
- ✓ Surge Protectors



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Applications

LIFE SAFETY	INFRASTRUCTURES	COMMERCIAL
Hospitals, Schools	Power Plants	Mining, Oil, Gas and Petrochemical Facilities
Sport Centers and Arenas	Telecommunications	Manufacturing and Industrial
Public Recreational Facilities	Military and Defense	Information Technology and Data Centres
Residential Neighborhoods	Airports, Harbours and Railway Stations	Tourism Industry
Retail Malls and Outlets	Meteorological Sites	Banking and Broadcasting Industry

Operating Requirements

- ✓ Safe staging and movement of passengers and cargo
- ✓ Safe aircraft movement and parking on a tarmac or gateway
- ✓ Safe fuel storage and refueling operation
- ✓ Protecting navigation, communications and power systems
- ✓ Protecting the air traffic control facility
- ✓ Protecting the terminal and adjacent buildings


BRIGHTEX
Technology
The One and Only
Active Lightning Protection
System

Brightex History

Year	Achievements
2008	Brightex is established in Canada upon acquiring the technology
2010	Patents awarded in USA, Canada and the EU; UL and CSA Standards awarded, CPLR becomes a 'Made in Canada' product
2011	Brightex begins global marketing strategy
2013	Brightex incorporates in the USA and establishes an office in NC

Patents and Standards

Patents

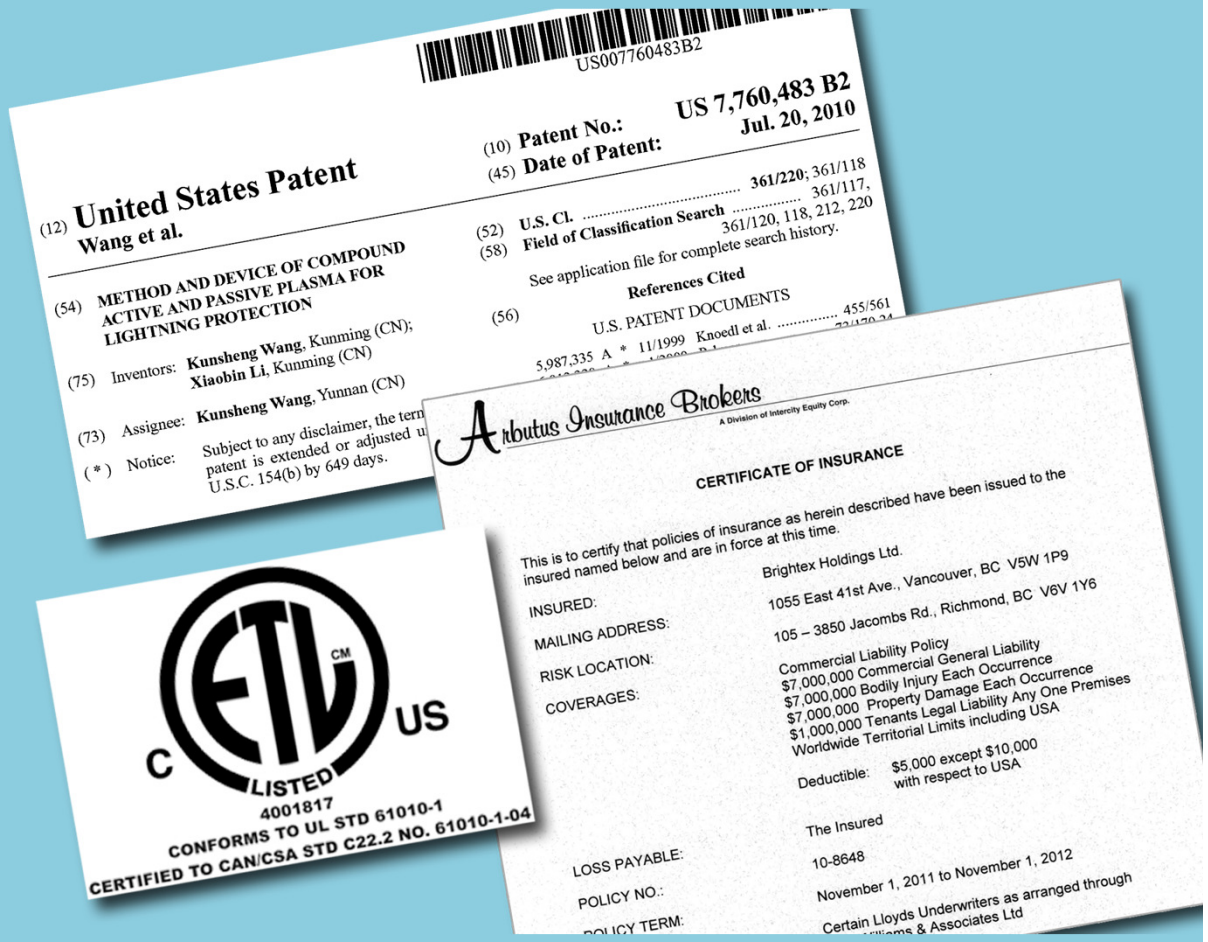
- ✓ European Union
- ✓ Canada
- ✓ USA

Standards

- ✓ CSA
- ✓ UL
- ✓ EU

Fully Insured

- ✓ Worldwide Coverage



Highlights

- ✓ Supplement and enhance NFPA 780 guidelines
- ✓ Physics of lightning are constant
- ✓ Does not offer elimination of lightning
- ✓ Lightning Bolt requires meeting of charges
- ✓ CPLR prevents this meeting

Compound Plasma Lightning Rejection

- ✓ **Active** Lightning Protection Technology
- ✓ Generates a plasma ion cloud that shields and protects assets inside the protection area
- ✓ Begins actively protecting when a storm is ~ 1.8 miles (3 kilometers) from a set location
- ✓ Protects a ground radius of 820 feet (250 meters) or approximately 50 acres (20 hectares)

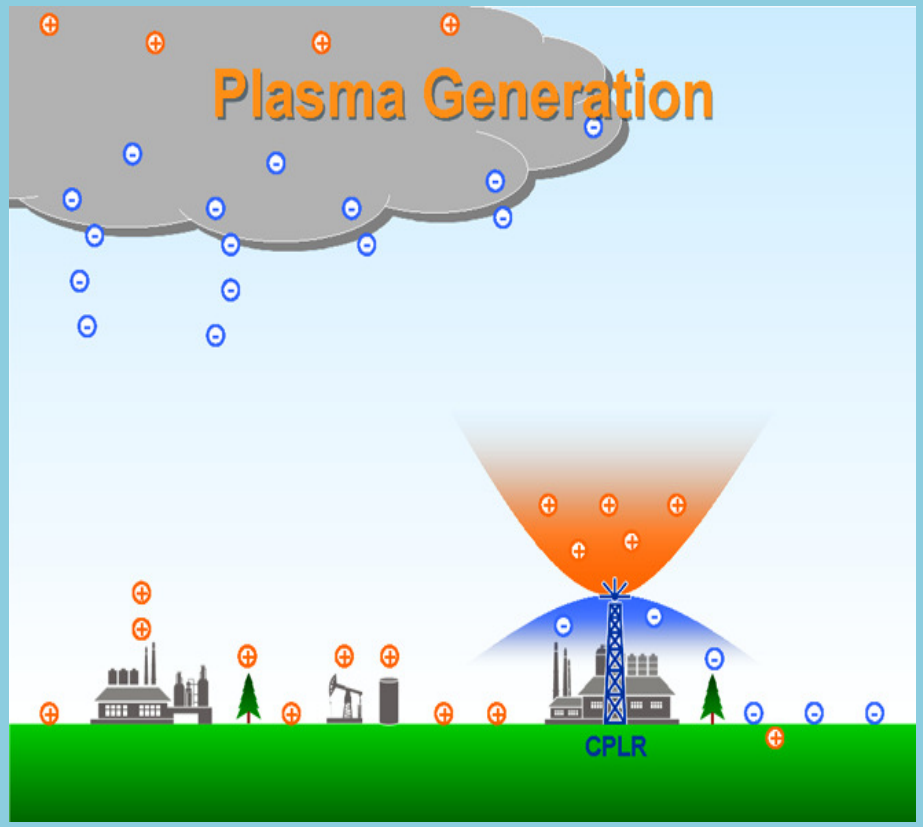
Four Integrated Steps

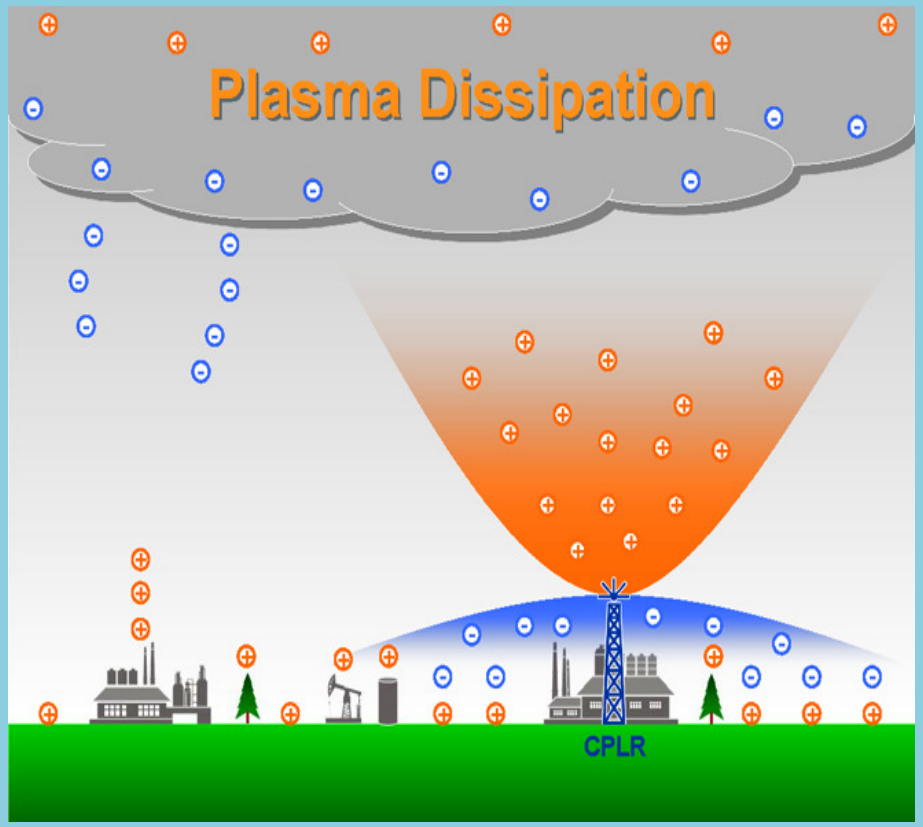
1. **Detect** the approaching lightning event
2. **Activate** the CPLR generator
3. **Generate and Disperse** the active plasma field
4. **Neutralize** energy between the cloud and earth

Brightex Fore Alarm

- ✓ **Active** storm detection through electric field intensity measurement
- ✓ Detects storm clouds to a range of 24 miles (38 kilometers)
- ✓ Operates 24/7
- ✓ Turns the CPLR on and off as necessary (20,000 volts per meter)

The World's First and Only Active Lightning Protection System





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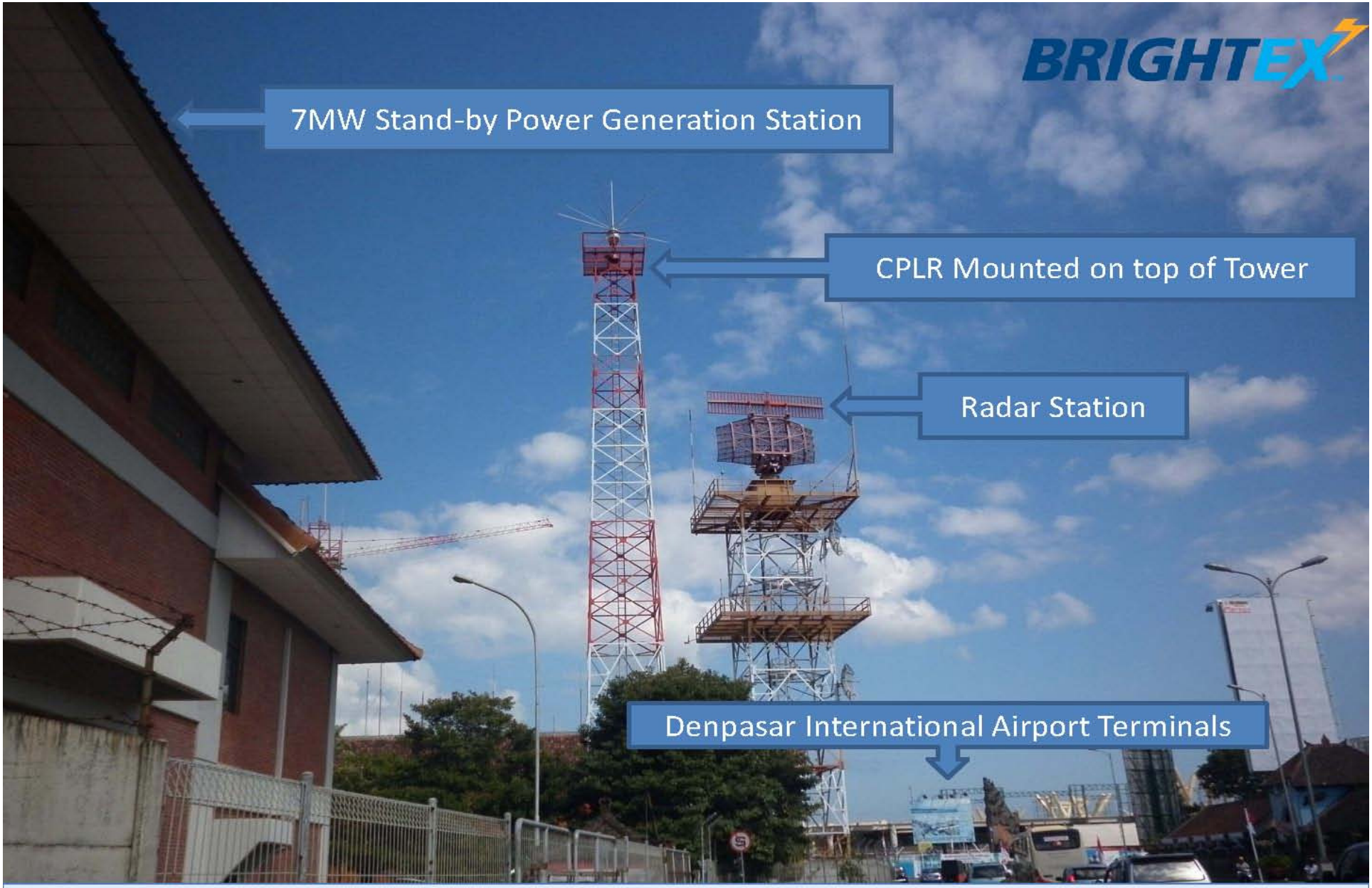
Benefits of CPLR Technology

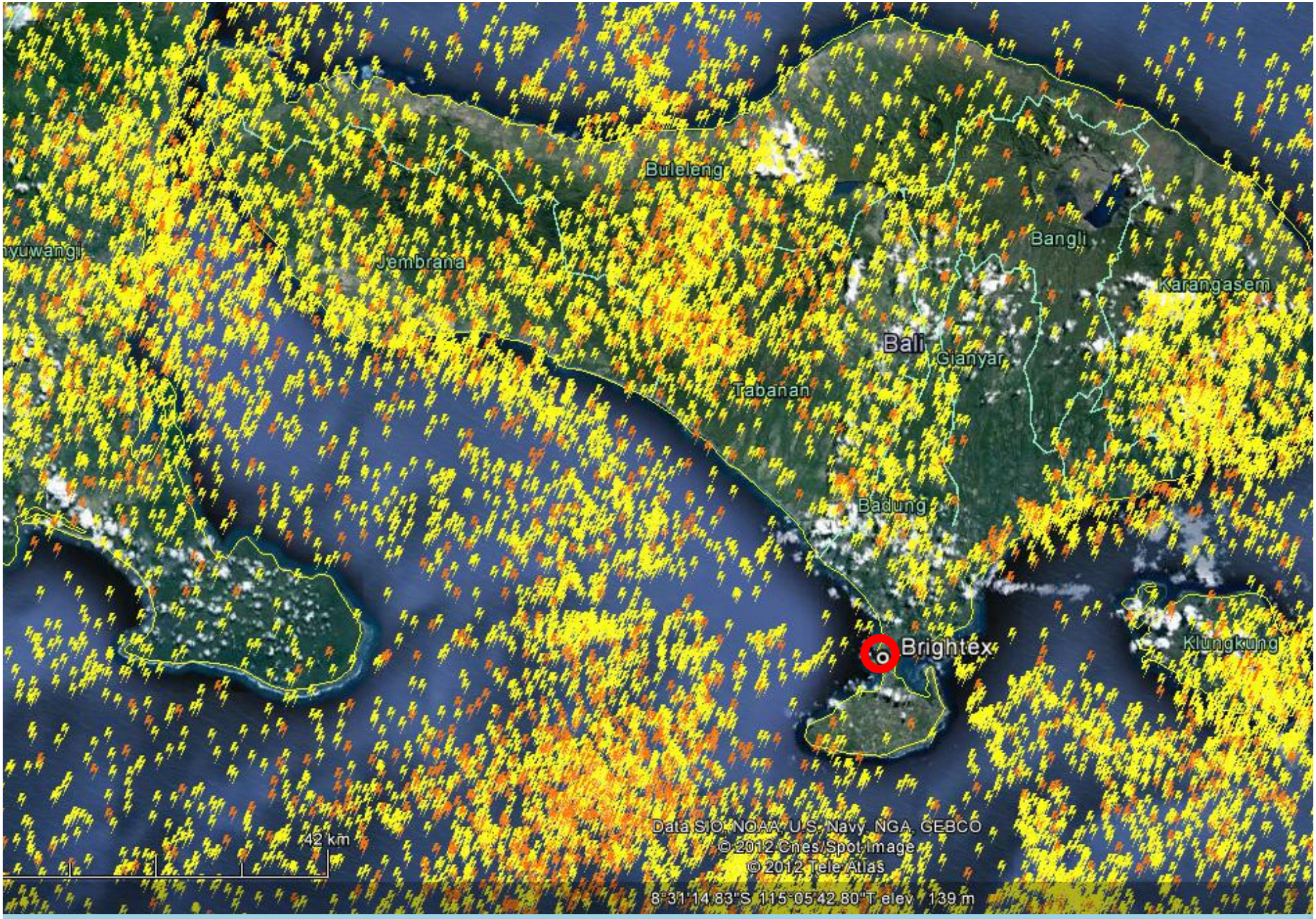
- ✓ **Active** shielding during a storm
- ✓ Each installation fit-for-purpose
- ✓ Lightweight and compact – 450 pounds (204 kilograms)
- ✓ Full Supervisory Control and Data Acquisition capability
- ✓ Unmanned operations capability

CPLR Features

- ✓ **Power Supply:**
  120/240 VAC 50/60 Hz
  Single Phase
- ✓ **Rated Power:**
  3 kilowatts/hour
- ✓ **Low Operating Frequency:**
  50 kHz



Brightex CPLR Installation at Denpasar International Airport in Bali, Indonesia (August 2012)


Buleleng
Jembrana
Bangli
Karangasem
Bali
Gianyar
Tabanan
Badung
Brightex
Klungkung
42 km
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image
© 2012 Tele Atlas
8°31'14.83"S 115°05'42.80"T elev 139 m

Superiority of the CPLR

- ✓ Active not passive protection
- ✓ Simple and reliable concept
- ✓ One CPLR per fifty acre area, including mobile assets
- ✓ Flexible and simple installation
- ✓ Web interfaced for 24/7 remote capability
- ✓ No grounding and no EMF
- ✓ Cost per square meter less than a rod system per asset in the same area
- ✓ Reduced insurance premiums

Bali Airport

Providing an ACTIVE Solution for Airport Protection

Ensuring the safety of people, property and infrastructure

Ensuring the continuity of operating revenue

Compound Plasma Lightning Rejection

CPLR 1000-G